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MASSAGE;

THE LATEST HANDMAID OF MEDICINE.

BY

BENJAMIN LEE, A.M., M.D., P.H.D.,

PHILADELPHIA.

EXTRACTED FROM THE TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA FOR 1884.

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MASSAGE—THE LATEST HANDMAID OF MEDICINE.

BENJAMIN THOMPSON, Green Mountain boy, American medical student, Yankee schoolmaster, colonel of dragoons, knight of Great Britain, chamberlain of the kingdom of Bavaria, count of the Holy Roman Empire, better known as Count Rumford, philosopher and philanthropist, hero of a history more wonderful than romance, never uttered a profounder thought than when he deduced the conclusion from one of his brilliant experiments on the production of heat without fire, "that anything which any *insulated* body or system of bodies can continue to furnish *without limitation* cannot possibly be a *material* substance," and that it appeared to him "extremely difficult if not quite impossible to form any distinct idea of anything capable of being excited and communicated in these experiments except it be MOTION." This was the germinal idea from which sprang the whole outgrowth of the modern theory of force, as worked out by such thinkers as FARADAY, GROVE, JOULE, THOMPSON, TYNDALL, and MAYER, as we find it elucidated for instance in TYNDALL'S "Heat as a Mode of Motion," and GROVE'S "Correlation of the Physical Forces." The latter writer demonstrates that not only heat, but sound, light, and electricity are modes of motion, produced by motion and convertible into motion. "The same arguments," he further says, "which have been submitted to the reader as to the other affections of matter being modes of molecular motion are equally applicable to *magnetism*." And again: "The nearest approach that we can form to a comprehension of *chemical action* is by regarding it as a molecular attraction or motion." That eminent Christian philosopher and physician, Prof. WILLIAM B. CARPENTER, in his essay on the "Correlation of the Physical and Vital Forces," goes a step farther, "aiming to show that the general doctrine of the Correlation of the Physical Forces propounded by Mr. GROVE is equally applicable to those vital

forces which must be assumed as the moving powers in the production of purely vital phenomena." Now since heat, electricity, and chemical action are inseparably associated with the beginnings of life as well as with its maintenance, it is not too much to regard them as, in the hands of the Creator, the means of its source and origin. And as all of these exhibitions of divine power can be traced back to motion as their ultimate cause or their essential condition, it follows that we must look upon motion as the source and conservator not only of force but also of life. Indeed when the inspired historian of the *genesis* of our universe endeavors to convey to human conception an idea of the mode in which creative power was put forth in order to bring order out of chaos, establish the rule of law or the forces of nature, and transmute inanimate matter into the first beginning of life, he can find no more fitting phrase than that the "Spirit of God *moved* upon the face of the waters." Looking upon the subject in this light, may we not reverently exclaim, with America's greatest orator and statesman, "Motion, divine, God-like Motion?"

If now, changing our point of view, we look at the processes of animal life from within, we find as the latest development of physiological research, the animal cell, with the incessant motion of its contents within and through its walls, by constant endosmose and exosmose, as the unit and exponent of life both in its origin and its perpetuation. Irregularity or retardation of motion in the cell-contents constitutes disease. Cessation of this motion is death. We may therefore not inappropriately define a state of health to be one in which the motions of the cell-contents are normally carried on. This condition being disturbed, what can be at the same time more natural and more scientific than to introduce motion from external sources to regulate and restore it? This is the function of Massage; and I claim that it is not too much therefore to assert for this therapeutic means that it is founded upon the strictest inductions of science, and is in harmony with the most recent revelations of physiological investigation.

Massage, the latest Handmaid of Medicine: the claim is surely a modest one. The tendency of the human mind is ever to magnify its latest conception at the expense of all previous conceptions; to claim that, because there are certain merits and advantages in a new system, all previous systems are without merit. With those who have not had the opportunity or the patience to examine into these merits, such pretensions always awaken an unfavorable prejudice against the new idea, and it comes more or less under the ban, from the fault of its rash and narrow-minded supporters. A

popular divine has said that "there is no heresy without its germ of truth." It has become a heresy, because its adherents regarded this germ as the whole truth, and refused to recognize any other. This is as true in medicine as in religion. Unthinking and dogmatic opposition aroused by unwise, extravagant, and exclusive laudation has crushed many a tender germ of scientific truth, and deprived Medicine for long years of many a trusty handmaid.

I have striven to keep the temper and disposition of my mind free from this tendency to view truth through a crow-quill in the consideration of the topic to which I wish to call your attention, and to assert for Massage, as a means of treating disease, simply the position of an adjuvant to legitimate Medicine and Surgery; I will even go so far as to say an humble adjuvant.

When I mention that I have now been familiar with this therapeutic means in the management of chronic functional disease of all kinds, and in the treatment of the sequelæ of local inflammations, for a quarter of a century, I think I shall be absolved from the charge of undue haste or rash enthusiasm in now for the first time introducing it to the notice of this distinguished body, which has so often listened to me with lenience upon other topics. If therefore the claims which I make for it as a remedial agent of great value—in certain cases or classes of cases not to be replaced by any other known means—seem to you at all extravagant, I beg you to remember that I do not make them unadvisedly.

By *Massage* I understand the communication of motion to the tissues of the living human body from an external source for therapeutic purposes. It is thus distinguished from *Movements*, variously designated as Swedish Movements, Localized Movements, Remedial Gymnastics, and so on, which imply motion of entire limbs or of the trunk, through the medium of the joints; and from *Exercise*, which presupposes the exertion of the will, and therefore the communication of motion from an internal source. It may be *Immediate*, communicated directly to the tissues by the hand of the operator, or *Mediate*, communicated through the agency of mechanical contrivances or machines. In the latter case it matters not whether the motor power be the muscle of an operator or steam or electricity. But the latter sources of motion must of course be under intelligent and watchful supervision. The word Massage comes to us from the Greek through the French, and means simply *Kneading*, the idea to be conveyed being that the operator works the flesh as the baker works his dough. It is better to use the French word than to translate it into English, because the English equivalent is used to describe one of the particular modes of Mas-

sage, and also because it has now a well-established position and definite signification in scientific medical literature all over the world. The attempt to belittle the system by calling it "*rubbing*," an entirely inadequate designation, can only react on those who employ it, by indicating their partial education and their lack of familiarity with the recent literature of other countries.

Avoiding the superfluous verbiage of French writers upon the subject, I adopt the simple nomenclature of METZGER of Amsterdam, who has done more than any one individual for the scientific elucidation as well as the practical advancement of the art, and name four methods of procedure in massage: *Stroking*, *Friction*, *Kneading*, and *Percussion*.

These designations are so descriptive as hardly to need explanation. But, as there is a right way and a wrong way of doing the simplest thing, and as this is especially true of massage, time will not be wasted in briefly describing the *modus operandi* of each.

Stroking is done over a large extent of surface with the palm of the hand or its radial border (the thumb being in the latter case abducted), with a degree of pressure varying with the indications. Its direction is, except in rare cases, centripetal—toward the heart.

Friction consists in forcible circular rubbing over smaller areas. It is performed with the full hand, or preferably with the tips of the fingers, and should constantly alternate with heavy centripetal stroking, either with the same or the other hand, over very small surfaces. The thumb is generally brought into requisition to perform this motion. It should, in cases of local inflammation, always be begun just outside of the diseased area, and should always conclude with centripetal stroking.

By *Kneading* is understood picking up a muscle or other portion of tissue with both hands or with the thumb and fingers of one hand and subjecting it to firm pressure, rolling and squeezing it, between them or against the firm underlying substance, as, for example, of bone. When we desire to manipulate a very small surface, the tips of both thumbs are used, and if the area is extremely minute, as, for example, where we wish to act on a nerve of the scalp, the backs of the thumb tips.

Percussion signifies striking and beating the surface. It may be done either with the hand or with an instrument constructed for the purpose called a percussor or muscle-beater. It may be modified to a greater extent than any of the other manipulations, by delivering the blow with different parts of the hand. We may use the palms, when it is appropriately called "clapping;" the ulnar borders, the "chopping" of the French; the tips of the fingers held

firmly, true percussion ; the closed fist, or the dorsal surfaces of the two last joints of the fingers held quite loosely, "whipping" or "flagellation." The movement should be lightly delivered from the wrist, with considerable rapidity and only moderate force.

Vibration is a modification of *kneading*. It consists in making the alternate pressure and relief from pressure, which constitute the essential features of that form of massage, with extreme rapidity. It may be imperfectly done with the hand, but much more effectively with the aid of a machine, since thus alone can the alternations be made with the requisite frequency.

The massage of certain regions requires explicit directions in order to accomplish the best results with the least discomfort to the patient and the least fatigue to the operator. I shall instance *cervical* and *abdominal massage*.

Massage of the neck is thus accomplished: The patient is instructed to stand with the head thrown slightly backward, and the shoulders drooping, the first because it is easier for the operator, the second because a broader surface for manipulation is thus offered. He must be enjoined to breathe quietly, regularly, and deeply, in order to promote the flow of blood from the head to the heart. The particular manipulation used is stroking, and it may be divided into three acts: The masseur, standing in front of the patient, lays the ulnar borders of the upturned palms in the cervical fossæ, so that the tips of the little fingers and last joints of the ring fingers shall rest upon the mastoid process behind the ear, and the little fingers themselves under the horizontal ramus of the lower jaw. While the ulnar borders are now moving downwards, both hands are rotated, bringing their radial borders upwards and inwards towards the head, until they reach the position at first held by the ulnar borders. The entire palm of the hand is thus brought into contact with the surface. At the same time, pressure has been made downwards, with the thumbs upon the right and left common jugular veins, and with the palmar surfaces of the fingers upon the superficial veins and lymphatics of sides of the neck posteriorly. The stroke is continued down to the supra-clavicular fossa, and the same movement is then repeated. Pressure upon the cornua of the hyoid bone and upon the larynx must be carefully avoided, as it will produce pain and inclination to cough. If the patient is too feeble to stand, the operation may be performed from behind, the patient sitting.

The first requisite to the proper performance of *abdominal massage* in most cases is a moderately relaxed condition of the abdominal muscles. To bring this about the trunk should be somewhat elevated, the legs partly flexed with the feet supported, and the

patient instructed to breathe quietly and regularly and to avoid as far as possible making the abdominal muscles rigid. It is done in several ways. The operator may place his hands on either side of the abdomen and execute a firm double kneading movement, one hand ascending as the other descends, the pressure being made chiefly by the thenar and hypo-thenar eminences. It should not go higher up than the transverse colon or below the ileum. The course of the colon should be carefully followed from cæcum to sigmoid flexure; or, the hands may be laid side by side, or, if deeper pressure is needed, one on top of the other, and made to describe circles from left to right, gradually diminishing until they terminate in the umbilicus. The pressure in this case is made chiefly with the heels of the hands. Or, the fists may be doubled and deep pressure made with each alternately following the direction of the colon. The latter form is especially indicated in extreme torpor of the c lon· When the integuments are thin and lax, with very little fat, the intestine may often be grasped between the thumb and fingers or between the rigid fingers of both hands pressed firmly down at right angles to the surface of the body, and the fecal mass thus forced onward. General massage consists of vigorous centripetal stroking of the whole surface, especial attention being given to the limbs and back.

Massage may be performed with the dry hand, or with the aid of an unguent, the latter, of course, next the skin, the former not necessarily so. The dry massage next the skin is powerfully derivative, producing strong reflex, thermal, and electrical effects. Unguents should always be used in treating inflammatory deposits in and about joints, with a view to procuring absorption.

The frequency and duration of the *séance* must depend upon the requirements and limitations of each individual case. There is never any occasion for the employment of so much force as to make the patient black and blue, as is often done.

What, now, are the effects of these various manipulations upon the human body? They may be classed under three heads, *Mechanical*, *Thermal*, and *Electrical.*

The first named are on the whole the most important, as they are the most apparent to the general observer. They consist in a stimulation of the interchange of cell contents under the effects of alternate pressure and relief from pressure, in increased activity in the movement of the areolar fluid, and noticeably in acceleration of the currents of blood and lymph in their respective vessels

It has been proved by direct experiment upon the lower animals that the flow of lymph is greatly increased by kneading and centripetal stroking, and that the lymphatic glands, while quite indifferent

to the stimulus of electricity, are readily excited to secretion by mechanical irritation. The effect of this increased activity upon the process of absorption can readily be imagined. A German physiologist, Von Mosengeil, injected a thick solution of finely-levigated India ink into the joints of a number of rabbits. Certain of these joints he subjected to massage, while others were, for the sake of comparison, left untouched. The first effect noted was a rapid diminution of the swelling produced by the injections. After a considerable time the animals were killed and the joints opened. In the cavities of those which had been kneaded, not a trace of the ink was found, while in those not so treated it was found in considerable quantities. On the other hand, examination of the thighs disclosed numerous and widely disseminated deposits of India ink in the areolar tissue in the limbs which had been manipulated, which were entirely wanting in the others. In like manner a transverse section showed that the connective tissue of the muscles, the muscles themselves, and above all the lymphatic glands and vessels were all more or less stained with the pigment. It is thus proved to a demonstration that the absorption of pathological effusions in joints is promoted by massage.

Not less instructive is the series of experiments of Reibmayer, of Vienna, from whose little treatise I have drawn freely in the preparation of this paper. They consisted in throwing injections of a weak saline solution at a temperature of 35° C. into the abdominal cavity in rabbits. Certain of them were subjected to abdominal massage only ten minutes from the time of introducing the fluid until they were put to death. Others were left untouched and killed at the expiration of the same period. The amounts of fluid remaining in the peritoneum were then carefully determined and compared, the result being that peritoneal absorption was increased by massage to 9.09 per cent., or 4.52 per cent. of the weight of the animal—twice as much as without massage—in one hour, and to 10.29 per cent., or 2.89 per cent. above what it would have been without massage, in two hours.

Light Stroking acts as a cutaneous irritant and reflex stimulus; its action is therefore nervous and vital. *Heavy stroking*, on the other hand, acts mechanically, accelerating the blood and lymph currents and forcing the effete products of degeneration and inflammation into the open mouths of the lymphatic vessels. Stroking around and away from inflamed tissues is more antiphlogistic and more soothing than poultices or fomentations. As has been well said, "By it exosmosis and endosmosis between the fluid of the areolar cells on the one side, and that of the capillaries on the other are quickened, the physio-

logical activity of the various tissue elements is stimulated; in fine, a more vigorous molecular interchange is set up."

The action of *Friction* is similar to that of *Stroking*, save that it is more local in its character, and is better adapted to the breaking down and dissipation of old deposits, exudations, and fungous granulations.

Kneading combines the effects of the two preceding methods, but the mechanical element here becomes predominant.

Kneading of the muscles is in reality a form of passive exercise. Under its influence the muscle gains in volume and firmness, each fibre becomes stronger, each cell more elastic, and its functional capacity thereby increased.

Percussion introduces us to a somewhat different set of phenomena. We here find an impression produced upon the nervous system, which we can only ascribe to a molecular change in the nerve tissue. Brief and light percussion throws the vessels of the part into a condition of contraction, while a continuance of the operation results in dilatation, which may even be pushed to the extent of paralysis of their muscular coats. Hence, in its administration, regard must be had to the force, number, and rapidity of the blows, the duration of the application, and the locality to which it is applied. The sensibility of a nerve may be in like manner first heightened and then obtunded.

A knowledge of the physiological effects of massage at once affords the clue to its *therapeutic applications*. And be it here observed that not the least among its advantages as a remedial agent is the fact that its mode of action is physiological and not pathological; that it removes one diseased process, not by substituting for it another diseased process, as is the case in the operation of internal remedies, but by substituting directly the condition of healthy action. Hence, if performed skilfully and judiciously, there need be no fear of any unpleasant after-results, such as can so often be traced to the administration of drugs, and may ultimately prove as serious as the original disease. The injury done by the habitual immoderate use of laxatives by women is an illustration of this fact.

Cervical massage, or massage of the neck, depletes the blood-vessels of the scalp and brain, and may therefore be used with great advantage in all congestions of the brain or its membranes, acting powerfully and rapidly, like a copious blood-letting, without the pernicious effects of the latter. In the congestive form of sunstroke, it is of great value, and also, as pointed out by my friend Dr. Mills, in congestive headaches.

Abdominal massage stimulates the circulation of the blood and flow of lymph in the digestive organs, and is extremely serviceable in torpor of the liver, taking the place of the time-honored blue pill; in dyspepsia, especially of the atonic form; in constipation and diarrhœa; in abdominal dropsy, and in congestive and inflammatory conditions of the womb and its appendages.

The power which it possesses of removing articular effusions points to its use in *all inflammations of the joints*, whether the result of injury or not, whether acute or chronic, except that when the existence of pus is demonstrated, care must be used not to cause its too rapid absorption into the lymphatics.

By its employment the treatment of *sprains*, those *opprobria* of surgery, which an eminent authority has asserted are responsible for more amputations than any other one cause, is reduced from a matter of months to one of days.

Anchylosis of the joints when not purely osseous, and that is of comparatively rare occurrence, and *old rheumatic stiffness* of the joints, can be overcome by this means to a remarkable degree, and often in a surprisingly short space of time, by associating it with simple acto-passive movements.

Its ability to relieve pain by producing numbness of the nerves points to it as an agent of great value in the *neuralgias*, especially those in which there is an injected or varicose condition of the vessels of the neurilemma. *Sciatica* has been the form in which it has yielded the most brilliant results, although I have seen an obstinate neuralgia of the brachial plexus, which was rendering life a burden, entirely relieved in five sittings.

Hysteria in all its protean manifestations—the so-called fashionable *neurasthenia*, *spinal irritation*, exhaustion of the great sympathetic nerve, and all the nameless types of chronic invalidism—may, as has been demonstrated by the brothers Taylor in New York, and by our distinguished fellow-members Weir Mitchell and Goodell, in this city, be successfully treated by it when all other means of cure have been exhausted, with only negative if not pernicious results; and this because it goes to the beginnings of life, of assimilation and of nutrition, and, commencing in the cell, builds up the system atom by atom, until the individual is literally reconstructed in body, and to a considerable extent even in mind. The same remark applies to its value in *aiding convalescence* from fevers and other wasting acute affections, and from surgical operations.

Its influence in developing muscular tissue indicates it as especially useful in *infantile* and some other forms of *paralysis*. Even in *locomotor ataxia*, vibrations have been known to produce decided amelioration.

Certain spasmodic affections of the muscles also, such as *chorea* and *writer's cramp*, have been treated by it with the happiest results.

In short, not to amplify this already too long catalogue, whenever we desire to profoundly modify the processes of nutrition, to remove effete material from the system, to stimulate assimilation and invigorate digestion, to soothe nervous irritability and relieve nerve pain, to remove morbid deposits from, and from the neighborhood of, inflamed joints, and thus restore to them their normal mobility, to equalize the circulation, sending the blood from the hot head, congested spine, or laboring heart, into the cold extremities, we shall, if we are wise, use massage. If we know how, and can spare the time, we shall do it ourselves. If, as is more probable, we do not know how or have not the time to devote to it, we shall employ an experienced masseur or manipulator to do it in our stead, but simply for the reasons stated, and not because it is in any way beneath our dignity to do it ourselves.

What then shall guide us in our choice of a manipulator? He or she, for both sexes may succeed admirably as *masseurs* or *masseuses*, must possess, first, vigorous health; secondly, muscular strength; thirdly, a cheerful temperament, a pleasant face, and an acceptable manner; fourthly, a soft and pliant but strong hand; fifthly, a fair education, and a certain amount of refinement; sixthly, a knowledge of the leading facts in anatomy, such as the position of the various organs, and the position and course of the larger arteries, veins, and nerves, and of such facts in physiology as the functions of the various organs, the course of the circulation, and the general processes of nutrition; and, seventhly and lastly, an acquaintance with the effects produced by the different forms of manipulation, the order in which these different forms should be employed in order to produce certain general effects, the injury which may be inflicted by employing them improperly or out of their proper order, and a practical dexterity in their application, to be attained only by training under an experienced instructor. Hence, it will be understood that we cannot take John from the stable or Biddy from the washtub, and, in one easy lesson, convert either into a safe, reliable, and efficient manipulator. Massage is an art, and as such must be acquired by study and patient practice, under competent guidance. It cannot be picked up at an hour's notice by any broken-down nurse or disappointed cobbler. As certainly as a trained nurse is superior to an untrained, so certainly, even more certainly, is a trained and well-instructed manipulator better than a self-taught "rubber." In this as in every art, in the words of the great Roman lawyer, *quam quisque nôrit artem in hâc se exerceat.*